APPENDIX B
RD/RA STATEMENT OF WORK

WEST KINGSTON TOWN DUMP/URI DISPOSAL AREA SUPERFUND SITE

May 2008

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I. INTRODUCTION AND PURPOSE

This Remedial Design/Remedial Action (RD/RA) Statement of Work (SOW) defines the response activities and deliverable obligations that the Settling Defendants are obligated to perform in order to implement the Work required under the Consent Decree (CD) at the West Kingston Town Dump/URI Disposal Area Superfund Site in South Kingstown, Rhode Island (the Site). The activities described in this SOW are based on the United States Environmental Protection Agency (EPA) Record of Decision (ROD) for the Site signed by the Deputy Director of the Office of Site Remediation and Restoration, Region 1, on September 28, 2006.

II. DEFINITIONS

The "Site" is defined in Section IV of the CD. Other definitions provided in CD are also incorporated herein by reference. In addition, the following definitions shall apply to this SOW:

A. "Remedial Design" shall mean an identification of the technology and its performance and operational specifications, in accordance with all applicable federal, state, and local laws, including, but not limited to:

1. computations used to size units, determine the appropriateness of technologies, and the projected effectiveness of the Remedial Action;

2. scale drawings of system layouts identified above, including, but not limited to, well logs and geologic cross-sections;

3. materials handling and system layouts for excavation and treatment of soils with chemical oxidation, treatment of groundwater with chemical oxidation, and decontamination and demobilization of facilities to include size and location of units, treatment rates, and location of electrical equipment and pipelines;

4. quantitative analysis demonstrating the anticipated effectiveness of the Remedial Design to achieve the Performance Standards;

5. technical specifications which detail the following:

   a. size and type of each major component; and

   b. required performance criteria of each major component;

6. description of the extent of environmental and ambient air monitoring including equipment, monitoring locations, and data handling procedures; and

7. description of access, land easement, and any other institutional controls required to be supplied with the construction plans and specifications.

B. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

C. "Monitored Natural Attenuation" ("MNA") shall mean the reduction of contaminants in groundwater through natural mechanisms in the undisturbed aquifer underlying the Site.

D. "RIDEM" shall mean the Rhode Island Department of Environmental Management or any successor departments or agencies of the State.

E. "Settling Defendants' Certification" shall mean the following statement: "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

III. SELECTED REMEDY

Section L, Part 2 of the ROD describes the comprehensive final remedy selected for the Site. The following are the major components of the remedy to be performed by the Settling Defendants:

1. Treatment of Source Area Soils

The Settling Defendants shall:

- Excavate approximately 2,300 cubic yards of clean soils in the Former Drum Storage Area to the depth of contamination. The Settling Defendants shall leave the clean soils onsite, and use these soils as backfill for the excavated area after chemical oxidation is completed.
- Mechanically mix a chemical oxidant (such as potassium permanganate) into the contaminated soils in situ, adding water as needed to optimize mixing and using sufficient quantities of oxidant (a) to achieve the Performance Standard for Soil throughout the Former Drum Storage Area, (b) to destroy 95% or more of the mass of tetrachloroethene ("PCE") throughout the Former Drum Storage Area, and (c) to provide sufficient volume so that at least some quantities of oxidant seep into groundwater.

- Collect samples sufficient to confirm that the soil cleanup level of 0.1 mg/kg for PCE has been achieved in all samples throughout the Former Drum Storage Area. The number of confirmatory samples will be determined during the Remedial Design phase.
- Backfill and re-vegetate the area.

Implementation of the chemical oxidation treatment shall be consistent with Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater, ITRC, January 2005, and In-Situ Chemical Oxidation, EPA Engineering Paper, EPA/600/R-06/072, August 2006.

2. Treatment of Source Area Groundwater

The Settling Defendants shall:

- Perform detailed pilot studies to obtain additional characterization of subsurface conditions and to obtain parameters necessary to design and install an effective chemical oxidant injection system. These parameters shall include oxidant demand, oxidant injection rates vs. injection pressure, travel times, oxidant distribution, persistence of the oxidant and reagents, mobilization of metals, contaminant rebound, reaction byproducts, fouling problems, and potential difficulties and limitations in scaling up the system.
- In the area upgradient of the soil treatment area, at the top of the hill in the vicinity of the Former Drum Storage Area (delineated on the map attached to the CD as Appendix C), install 10 wells spaced 40 feet apart (or a different number and/or configuration of wells, if EPA so approves or directs) to distribute oxidant across the plume. The inner well casings shall be made of a non-reactive material (such as PVC) designed to resist the chemicals, and the wells shall be capable of injecting oxidant into the upper 40 feet of bedrock.
- Construct a secure chemical feed system outside the zone of contamination, to contain a re-circulation tank capable of mixing oxidant solution into water prior to injection into the plume.
- Test soils displaced by the wells and feed system. The Settling Defendants shall send these to an off-site licensed facility for disposal if determined to be hazardous.
- Inject chemical oxidant solution into the bedrock groundwater plume (using remediation grade oxidant tested for heavy metals impurities, including chromium and arsenic) until 90 percent of the mass of VOCs in the source area groundwater has been destroyed, as determined by a groundwater monitoring program.

Implementation of the chemical oxidation treatment shall be consistent with Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater, ITRC, January 2005, and In-Situ Chemical Oxidation, EPA Engineering Paper, EPA/600/R-06/072, August 2006.

3. Environmental Monitoring/Monitored Natural Attenuation

The Settling Defendants shall:

- Implement an environmental monitoring program during the chemical oxidation of soils and groundwater sufficient to (a) determine the effectiveness of the in-situ treatment and to demonstrate that there are no adverse impacts on the URI Pond and other downgradient surface waters and wetlands from the injection of the chemical oxidant into the soil and groundwater, and (b) demonstrate that the chemical feed and injector well system are performing at optimal capacity.
- Implement a program of semi-annual monitoring (unless EPA approves or directs a different frequency of sampling for the Site as a whole or for particular media or areas) of groundwater and surface water sufficient to measure whether natural attenuation is reducing concentrations of VOCs over time, using the existing system of monitoring wells and (to the extent determined necessary by EPA) new wells. This program shall provide for (a) monitoring of surface water in URI Pond to insure that the exceedance of the ambient water quality criteria for PCE is eliminated (the RIDEM criteria for chronic exposures to aquatic life is 5.3 ug/L for PCE), (b) comparing the rate at which VOCs are attenuating over time to the rate predicted in the Feasibility Study, (c) testing groundwater for water quality parameters and geochemical natural attenuation parameters, and (d) reporting monitoring results to EPA and RIDEM. Reports shall also include information on whether institutional controls (described below) have been recorded and whether the landfill caps on the Site have been adequately maintained.

4. Institutional Controls

Settling Defendants shall:

- Record institutional controls on any land owned by the Settling Defendants, and use best efforts to record institutional controls on land owned by others (in accordance with the requirements of the CD), where such properties lie above groundwater that is at least partially contaminated by Site contaminants and that is contaminated at levels exceeded by Provisional Groundwater Cleanup Levels or any Modified Groundwater Cleanup Levels approved or promulgated by EPA (as described below). The institutional controls shall take the form of deed restrictions running with the land, consistent with State requirements. The institutional controls shall forbid use of contaminated groundwater, shall require the property owner to notify EPA and RIDEM of any proposals to develop the land, and shall be sufficient to protect the integrity of the onsite landfill caps implemented pursuant to the State-administered landfill closures.
- Cooperate with any action by EPA and the State to implement institutional controls in addition to or instead of the deed restrictions described above, including but not limited to local ordinances and/or other state regulations that are enforceable and reliable for long-term protection.
- Once the institutional controls have been implemented, the Settling Defendants shall

monitor compliance with the restrictions, and take any steps needed to demonstrate that the restrictions are enforced and remain effective to prevent exposures to contaminants, as part of the long-term monitoring program. EPA (after reasonable opportunity for review and comment by the State) may evaluate whether restrictions can be removed or modified because acceptable contamination levels have been reached at the Site.

5. Five-Year Reviews

EPA expects to review the remedy at least once every five years, for so long as hazardous substances, pollutants and/or contaminants remain at levels sufficient to preclude unlimited use of and unrestricted exposure at the Site or as otherwise required by law.

Settling Defendants shall provide to EPA and the State data and supporting documentation sufficient to demonstrate that human health and the environment are being protected by the Remedial Action. This data and documentation shall take the form of a Five-Year Review Report, to be submitted by Settling Defendants to EPA and the State every five years (on a schedule to be approved or promulgated by EPA, after a reasonable opportunity for review and comment by the State), for approval or modification by EPA after a reasonable opportunity for review and comment by the State, pursuant to Section XI of the Consent Decree. This report shall, at a minimum, include an evaluation of institutional controls required by the ROD as well as those necessary to protect the integrity of the landfill caps. EPA may seek to require additional actions as a result of these reviews, consistent with the requirements of Section VII of the Consent Decree.

Each five-year review shall address the entire Site, including but not limited to the areas capped as part of the State-administered landfill closures (i.e., not only the areas subject to groundwater treatment). The first five-year review shall be completed within five years of the date on which the remedial action associated with the State-administered landfill closure was initiated (i.e., not the date that the soil or groundwater oxidation treatments described above are initiated).

IV. PERFORMANCE STANDARDS

The Setting Defendants shall achieve the Performance Standards described in this section. The Settling Defendants shall also design, construct, operate, monitor and maintain the Remedial Action in compliance with the applicable or relevant and appropriate requirements ("ARARs") identified in the ROD and all requirements of the Consent Decree and this SOW, whether or not these ARARs or requirements are identified as Performance Standards.

The Performance Standards for the Site are as follows:

A. Groundwater Cleanup Levels

The Settling Defendants shall reduce concentrations for each of PCE and trichloroethene (TCE) below 5 ug/L throughout the plume of groundwater contamination at the Site ("Provisional Groundwater Cleanup Levels"). These limits are the MCLs for PCE and TCE.

The Settling Defendants shall remediate the groundwater at the Site until Settling Defendants demonstrate that the Provisional Groundwater Cleanup Levels identified above have been achieved and have not been exceeded for a period of three consecutive years. The Settling Defendants shall demonstrate compliance using the evaluation procedures defined in 40 CFR § 264.97, and shall submit the results to EPA in the Demonstration of Compliance Report described below. If EPA, after reasonable opportunity for review and comment by RIDEM, agrees that the Provisional Groundwater Cleanup Levels have been achieved (through an approval or modification of the report pursuant to Section XI of the Consent Decree), the Settling Defendants shall perform a risk assessment on the residual groundwater contamination.

The risk assessment of the residual groundwater contamination shall assess the cumulative risks for carcinogens and non-carcinogens posed by consumption of Site groundwater. If EPA determines, after reasonable opportunity for review and comment by RIDEM, that the risks are within EPA's risk management standard for carcinogens and non-carcinogens, the residual groundwater concentrations shall constitute the final Cleanup Levels for the Site groundwater, and shall be considered Performance Standards for any Remedial Action regarding site groundwater. If EPA determines, after reasonable opportunity for review and comment by RIDEM, that the cumulative risks are not within the risk management standard for carcinogens and non-carcinogens promulgated by EPA at that time, then EPA will establish Modified Cleanup Levels, and the Settling Defendants shall continue the Remedial Action until the Modified Cleanup Levels are achieved, or the remedy is otherwise deemed protective by EPA. These Modified Cleanup Levels shall constitute the final cleanup levels for the Site groundwater and shall be considered Performance Standards for any Remedial Action regarding Site groundwater.

In performing the risk assessment described above, the Settling Defendants shall conform to EPA's *Guidelines for Carcinogen Risk Assessment* (March 2005) and *Supplemental Guidance for Assessing Early-Life Exposure to Carcinogens* (March 2005), and/or to any updates or revisions to these guidance documents identified by EPA.

B. Soil Cleanup Levels

The Performance Standard for soil is to reduce concentrations of PCE to below 0.1 mg/kg for the source area soils as identified in the ROD. This limit is RIDEM's soil leachability criterion for PCE.

The Settling Defendants shall remediate the soil in the area delineated on the map in Appendix C to the CD ("Former Drum Storage Area") at the Site until the sampling program in the Demonstration of Compliance Work Plan (as approved or modified by EPA pursuant to Section XI of the Consent Decree) indicates that no soils in the Former Drum Storage Area contain concentrations of PCE in excess of this Performance Standard.

V. REMEDIAL DESIGN

The Settling Defendants shall develop a final Remedial Design that implements the remedy described in Section III of this SOW and Section L of the ROD, and meets the Performance Standards specified in Section IV of this SOW.

Section V.A. describes the Settling Defendants' responsibilities for submitting deliverables and carrying out certain tasks described in these deliverables during the Remedial Design. Section V.B. describes the Settling Defendants' responsibilities for conducting Remedial Design Project Meetings. Deadlines are described below and in the schedule included as Attachment A.

These obligations are not intended to preclude or replace any obligations imposed in the CD, including the obligation to submit the name, title and qualifications of a Supervising Contractor pursuant to section VI of the CD. In addition to identifying the Supervising Contractor, the Settling Defendants shall (at the same time that they identify the Supervising Contractor, or when the contractor is retained, if retained at a later date) provide the name, title and qualifications of all contractors whom the Settling Defendants expect to carry out the Remedial Design, to the extent these contractors are different from the Supervising Contractor retained pursuant to Section VI of the CD. These contractors shall be subject to disapproval by EPA as per the process described in the CD for disapproval of a Supervising Contractor.

A. Deliverables

The Settling Defendants shall submit to EPA and the RIDEM the required deliverables as stated herein for each of the Remedial Design activities. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to review and approval or modification by EPA, after a reasonable opportunity for review and comment by RIDEM, in accordance with Section XI of the CD, EPA Approval of Plans and Other Submissions. EPA may consider requests from the Settling Defendants to combine two or more of the deliverables described below.

1. **Design Progress Reports**

During the period beginning in the month Settling Defendants submit the Remedial Design and Pilot Studies Work Plan, and up until EPA approval or modification of the Final Remedial Design Report, the monthly progress reports required under Section X of the CD shall include additional information on the current percent design complete and any problems encountered and/or changes to the schedule.

2. **Remedial Design and Pilot Studies Work Plan**

Within 30 days after EPA issues its authorization to proceed under Section VI of the Consent Decree, or by any earlier deadline agreed to by Settling Defendants and EPA, the Settling Defendants shall submit a Remedial Design and Pilot Studies Work Plan to EPA for review and approval or modification, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. It shall include:

a. a description of pilot studies to be conducted (to include at a minimum all pilot studies described in Section III of this SOW and Section L of the ROD), a statement of the purpose and objectives of the pilot studies, and an identification of the specific activities necessary to complete the pilot studies;

b. a comprehensive design management schedule for carrying out the pilot studies and the rest of a Remedial Design that implements the part of the remedy described in sections III.1-.2 of this SOW;

c. a pilot studies Project Operations Plan (POP). The POP shall consist of:

1. a Site Management Plan (SMP);

2. a Sampling and Analysis Plan (SAP), comprised of a Quality Assurance Project Plan (QAPP) and a Field Sampling Plan (FSP); and

3. a Site-specific Health and Safety Plan (HSP);

The Settling Defendants shall prepare this POP in accordance with

Attachment B of this SOW.

Upon approval or modification of the work plan pursuant to Section XI of the Consent Decree, Settling Defendants shall carry out any pilot studies required under the work plan within 60 days and incorporate results into the Remedial Design Reports (Preliminary, Intermediate, Pre-Final and Final) described below.

3. Institutional Control Plan

Within 45 days after the Effective Date of the Consent Decree, the Settling Defendants shall submit an Institutional Control Plan to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. This plan shall implement the remedy (as described in section III.4 of this SOW) pertaining to institutional controls, including a schedule for performing all necessary surveys, for submitting draft deed restrictions, and for recording any approved or modified deed restrictions, consistent with Section IX of the Consent Decree.

Upon approval or modification of the Institutional Control Plan pursuant to Section XI of the Consent Decree, Settling Defendants shall implement the part of the remedy pertaining to institutional controls (as described in section III.4 of this SOW) under the schedule and according to the terms of the Institutional Control Plan, beginning work within 15 days after EPA approval or modification of the Plan. An Institutional Control Report, documenting that institutional controls in the form of deed restrictions have been properly recorded, shall be submitted as part of the Remedial Action Work Plan described in Section VI of this SOW.

4. Preliminary Remedial Design Report (30% Design Report)

No more than 180 days after EPA approves the Remedial Design and Pilot Studies Work Plan (unless EPA, after reasonable opportunity for any comment by RIDEM, agrees to extend the deadline), Settling Defendants shall submit a Preliminary Remedial Design Report to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. This report and all subsequent design reports shall describe the progress in planning the implementation of the two oxidation treatments (soil and groundwater)

described in sections III.1-2 of this SOW, and for implementation of any other parts of the remedy discussed in this subsection. By the time they submit this Preliminary Remedial Design Report, the Settling Defendants shall have completed 30 percent of the efforts to design these parts of the Remedial Action and field-verified conditions at the Site and performed any necessary pilot studies. The Settling Defendants shall provide supporting data and documentation with the Preliminary Remedial Design Report sufficient to define how these parts of the Remedial Action will function and to prove that these parts of the Remedial Action will be effective in meeting the Performance Standards and ARARs.

The Preliminary Remedial Design Report shall include, at a minimum:

a. A Pilot Studies Evaluation Report.

b. A Design Criteria Report that defines in detail the technical parameters upon which the oxidation parts of the Remedial Design will be based. Specifically, the Design Criteria Report shall include the preliminary design assumptions and parameters, including (1) treatment materials (oxidant) requirements; (2) volume and types of each medium requiring treatment; (3) treatment schemes, rates, and required qualities of material and any waste streams; (4) performance standards; (5) short-term and long-term performance monitoring and maintenance requirements; (6) technical factors of importance to the Remedial Design and construction including use of currently accepted environmental control measures, constructability of the Remedial Design, and use of currently acceptable construction practices and techniques.

c. A preliminary schedule for carrying out the oxidation treatments, and a plan to conduct monitoring to demonstrate that the treatments do not cause adverse impacts to downgradient surface waters and wetlands, as described in section III-3 of this SOW.

d. A set of preliminary drawings and schematics. The preliminary drawings shall include (1) an outline of proposed drawings and schematics; (2) treatment train representations including a process flow diagram and a preliminary piping and instrumentation diagram; and (3) site drawings. Standard formats for use in preparing design drawings shall be similar to those described in the

USACE Architect Engineer Manual.

e. A Basis of Design Report that provides a detailed description of the evaluations conducted to select the design approach. This report shall include a Summary and Detailed Justification of Assumptions. This summary shall include: (1) calculations supporting the assumptions; (2) a draft process flow diagram; (3) a detailed evaluation of how ARARs will be met; (4) a plan for minimizing environmental and public impacts; and (5) a plan for satisfying any applicable permitting requirements. Information obtained during the pilot studies shall be used to support the development of this report.

f. If the Settling Defendants find that an ARAR cannot be met, the Settling Defendants shall describe the issue and recommend technical solutions in a memorandum to be submitted to EPA.

5. Pre-Final Remedial Design Report (90% Design Report)

Within 90 days after EPA approval or modification of the Preliminary Remedial Design Report, the Settling Defendants shall submit a Pre-Final Remedial Design Report to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree.

The Pre-Final Remedial Design Report shall include, at a minimum:

a. A summary of how any comments generated by EPA (after reasonable opportunity for review and comment by RIDEM) from review of the Preliminary Remedial Design Report have been incorporated. Modifications of the Remedial Design as a result of incorporation of the comments shall be clearly identified.

b. A final schedule for implementation of the two oxidation treatments, and a plan to conduct monitoring to demonstrate that the treatments do not cause adverse impacts to downgradient surface waters and wetlands.

c. A complete set of final construction drawings, plans and specifications (general specifications, drawings, and schematics).

The final design plans and specifications must be consistent with the technical requirements of the ARARs identified in the ROD. A complete set of construction drawings and specifications as well as a set of one-half size reductions of drawings shall be submitted as a paper copy and in electronic form.

d. A final revised Basis of Design Report that incorporates any changes since submission of the Preliminary Remedial Design Report.

e. A draft Operations and Maintenance Plan ("O&M Plan") to govern operation of the groundwater treatment and monitoring systems. The O&M Plan shall provide for taking any steps needed to insure that the systems operate at optimal capacity, as discussed in section III.3 of this SOW. The draft O&M Plan shall include the following:

1. A description of normal operation and maintenance activities to be performed by the Settling Defendants, including a description of tasks and schedule.

2. A description of potential operating problems including common and/or anticipated remedies and useful-life analysis of significant components.

3. An O&M Quality Assurance Plan that includes a description of the tasks to be performed by Settling Defendants, including: routine monitoring tasks, required laboratory tests (information from the QAPP may be incorporated by reference) and their interpretation, required data collection, and location of monitoring points.

4. Procedures to be followed by Settling Defendants to prevent releases or threatened releases of hazardous substances, pollutants, or contaminants, which may endanger health and the environment or cause an exceedance of any cleanup standard identified in the ROD.

5. Corrective action to be implemented by Settling Defendants in the event that cleanup standards for soil and groundwater

are not met as predicted, and a schedule for implementing these corrective actions.

6. An Operating Safety Plan that includes a description of precautions to be taken by site personnel, equipment to be worn by, used by or made available to site personnel, safety tasks to be undertaken in the event of systems failure, and any notifications or other procedures necessary to protect nearby residents in the event of a malfunction or accident.

7. Description of equipment and monitoring components to be used, with a schedule for maintaining and replacing the equipment and monitoring components.

8. Record-keeping and reporting procedures to be followed by Settling Defendants, including provisions for: (a) maintaining operating logs, personnel records, maintenance records and laboratory records; (b) reporting emergencies; and (c) making reports to EPA and the State.

9. A provision for inspection, continued maintenance and repair, or abandonment, if necessary, of all wells and auxiliary equipment used during Remedial Action and during any period of operation and maintenance following Remedial Action.

f. A Construction Quality Assurance Plan (CQAP). At a minimum, the CQAP shall provide the following elements:

1. A description of the responsibility and authority of all organizations and key personnel to be involved in the Remedial Action construction and operation. All contractors (other than the Supervising Contractor retained pursuant to Section VI of the Consent Decree) involved in Remedial Action construction and operation shall be identified by name, title and qualifications, and shall be subject to disapproval by EPA, pursuant to the same process used to disapprove a Supervising Contractor under the Consent Decree.

2. Inspection Activities. The contractor shall describe the observations and tests that will be done to monitor the construction and/or installation of the Remedial Action. The plan shall describe the scope and frequency of each type of inspection to be conducted. Inspections shall document compliance with ARARs. Inspections shall also document compliance with the health and safety plan.

3. Checklists for the required tests and inspections.

4. Sampling requirements. To the extent not addressed by the QAPP, the contractor shall establish procedures to be followed in taking samples, including standard operating procedures for sampling and testing, sample size, sample locations, frequency of testing, criteria for acceptance and rejection (i.e., quality assurance and quality control procedures), and plans for correcting problems as addressed in the project specifications.

5. Documentation. The contractor shall set out reporting requirements for CQA activities. This shall include such items as daily summary reports and inspection data sheets.

6. A process for notifying EPA and RIDEM and seeking approval for changes to the Remedial Design; and

7. A process for responding to significant weather events during construction.

g. A draft Demonstration of Compliance Work Plan. The draft Demonstration of Compliance Work Plan shall include plans for undertaking the environmental monitoring described in Section III.3 of this SOW until Provisional Groundwater Cleanup Levels (or any Modified Groundwater Cleanup Levels approved or promulgated by EPA) are attained for three consecutive years, except for monitoring provided for in the O&M Plan or in the Remedial Design of the oxidation treatments. The Plan shall describe in detail how the Settling Defendants shall demonstrate that the Performance Standards and all ARARs listed in the ROD will be achieved and maintained.

The draft Demonstration of Compliance Work Plan shall contain at a minimum the following:

1. An outline of, and schedule for, activities to be conducted by Settling Defendants to demonstrate compliance with the design/construction criteria in the Final Remedial Design Report.

2. An outline of, and schedule for, confirmation sampling and analysis to be performed by Settling Defendants to confirm that the soil Performance Standards have been met throughout the former Drum Storage Area, following treatment of soils in this area with oxidant. This sampling shall include monitoring to measure the effectiveness of the soil oxidation treatment, as described in section III.3 of this SOW.

3. An outline of, and schedule for, sampling and analysis for groundwater monitoring to be performed by Settling Defendants to confirm progress toward eliminating contamination throughout the source area groundwater. This sampling program shall be adequate to determine when 90% of the contaminant mass has been destroyed in the source area groundwater (such that the groundwater oxidation treatment can be discontinued), and shall also include monitoring to measure the progress of MNA and the groundwater remedy generally, as described in section III.3 of this SOW. This description shall identify the number and location of the monitoring wells, the frequency of sampling, the analytical parameters, and sampling and analytical methods to be used to document groundwater quality.

4. Provisions for performance of a risk assessment once the Provisional Groundwater Cleanup Levels have been met, sufficient to determine whether the groundwater remedy remains protective or whether Groundwater Cleanup Levels should instead be modified, consistent with the discussion of the groundwater remedy in section III.2 of this SOW and

Section L of the ROD.

5. An outline of, and schedule for, surface water sampling to be performed after the conclusion of the oxidation treatments by Settling Defendants, consistent with the environmental monitoring part of the remedy described in Section III.3 of this SOW (e.g., monitoring to measure the effect of the oxidation treatments on URI Pond and wetlands).

6. With respect to all sampling and analysis required to demonstrate compliance, a description of: sampling locations; sampling frequency; sampling methods; list of analytes and analytical methods; date and standard operating procedures for quality assurance and quality control measures; statistical analysis and/or modeling and/or other data interpretation techniques consistent with EPA guidance and policies; a provision for evaluating the need for remedy enhancements to be implemented by the Settling Defendants as directed by EPA; and a provision for performing any enhancements as directed by EPA.

7. An outline of, and schedule for, the reports and deliverables that will be submitted by the Settling Defendants to document compliance with ARARs and with the Performance Standards, as specified in Section IV of this SOW and the ROD. Reports documenting compliance with ARARs shall provide the citation of the ARAR, summarize its requirements, and specify in detail the activities that will be performed to demonstrate compliance with the ARAR.

6. Final Remedial Design Report (100% Design Report)

Within 60 days after EPA approval or modification of the Pre-Final Report, the Settling Defendants shall submit a Final Remedial Design Report with Settling Defendants' Certification to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. The Final Remedial Design Report shall be identical to the approved or modified

Pre-Final Report, except for the addition of this Certification.

B. Design Project Meetings

The Settling Defendants and their Supervising Contractor shall meet at a minimum on a monthly basis with EPA and RIDEM during the Remedial Design phase, beginning within 30 days of EPA receipt of the Remedial Design and Pilot Studies Work Plan, to discuss the status of the Remedial Design, present the results of any investigations, and to discuss any issues associated with the development of the Remedial Design. With prior approval by EPA, these meetings may be conducted by telephone.

At least one week prior to each meeting, the Settling Defendants shall submit to EPA and RIDEM: (i) an agenda for the meeting; (ii) a summary of the issues that will be discussed; and (iii) any supporting information, including any specific information required for the meeting, as detailed below. (With EPA's prior approval, these submissions may be included in the monthly progress reports required under Section X of the CD.) These monthly meetings include the following list of mandatory meetings to be held during the Remedial Design phase:

1. Preliminary Remedial Design Meeting

Within 5 days after submission of the Preliminary Remedial Design Report, the Settling Defendants and their Supervising Contractor shall attend a Preliminary Remedial Design Meeting with EPA and RIDEM to discuss the preliminary Remedial Design described in the Report.

During the Preliminary Remedial Design Meeting, the Settling Defendants shall present the results of all Remedial Design investigations that have been completed, pilot studies, and the preliminary Remedial Design of the remedy based on these investigations and the Preliminary Remedial Design Report.

The Preliminary Remedial Design presentation shall cover, at a minimum:

a The results of pilot studies;

b. An ARARs Compliance Matrix, including a discussion of how ARARs will be met by the design and how performance will be

monitored;

c. A description of the design basis for each component of the design;

d. Preliminary plans, drawings, sketches, and calculations;

e. Outlines of the required technical specifications; and

f. A preliminary construction schedule.

2. Pre-Final Remedial Design Meeting

Within 5 days after submission of the Pre-Final Remedial Design Report, the Settling Defendants and their Supervising Contractor shall attend a meeting with EPA and RIDEM. At this meeting, the Settling Defendants shall present the Pre-Final Remedial Design and draft Demonstration of Compliance Work Plan and identify any changes made since the Preliminary Remedial Design Report. The Pre-Final Remedial Design Meeting shall also provide updated information on each of the elements covered in the Preliminary Remedial Design Meeting.

3. Other Meetings

EPA, RIDEM and/or the Settling Defendants may also schedule additional meetings as necessary to discuss any issues that arise during Remedial Design.

VI. REMEDIAL ACTION

The Settling Defendants shall implement the final Remedial Design for the remedy, as described in the Record of Decision and this SOW and shall meet the applicable Performance Standards specified in Section IV of this SOW. Section VI.A. describes the Settling Defendants' responsibilities for constructing the remedy, and submitting deliverables during the Remedial Action Phase. Section VI.B. describes the Settling Defendants' responsibilities for conducting Remedial Action Project Meetings. Deadlines are described below and in the schedule included as Attachment A.

A. Deliverables

The Settling Defendants shall submit to EPA and RIDEM the required

deliverables and shall perform activities required under these deliverables. Except where expressly stated otherwise in this SOW, each deliverable shall be subject to review and approval by EPA, after a reasonable opportunity for review and comment by RIDEM, in accordance with Section XI of the CD, EPA Approval of Plans and Other Submissions. EPA may consider requests from the Settling Defendants to combine two or more of the deliverables described below.

1. **Remedial Action Progress Reports**

For the period between submission of the Remedial Action Work Plan and approval of the Remedial Action Report, the monthly progress reports required under section X of the CD shall include the following information:

a. Identify the percent of construction completed;

b. Identify significant problems encountered and/or changes to the schedule;

c. Identify the status of each component of the remedy. If the construction of a component of the remedy has been completed since the last Progress Report, the Progress Report shall provide a description and chronology of the activities completed, as-built drawings signed and stamped by a professional engineer, sufficient documentation that the remedy component meets the applicable Performance Standards including sampling results and QA/QC documentation of these results, and certification that the work was performed consistent with the ROD, CD, Remedial Design plans and specifications, and the Remedial Action Work Plan and POP. The summary of each construction-completed component of the remedy may be submitted as a report under separate cover by the Settling Defendants.

d. If appropriate, photographs of the Site activities. Photographs shall be labeled with the date, brief description of the activity, weather conditions and direction/orientation of the photograph; and

e. Include the results of any monitoring conducted in accordance with the Demonstration of Compliance Work Plan described in Section VI.5 of this SOW.

2. Remedial Action Work Plan

Within 30 days after EPA approval or modification of the Final Remedial Design Report, the Settling Defendants shall submit a Remedial Action Work Plan for EPA review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. The Remedial Action Work Plan for implementing the Remedial Action and associated activities shall include a Revised POP and be consistent with the approved or modified Remedial Design.

The Remedial Action Work Plan shall provide a detailed description of construction activities and an overall management strategy necessary to implement and complete the Remedial Action. The Remedial Action Work Plan shall contain, at a minimum:

a. A description of activities necessary to implement the Remedial Action, in accordance with the approved or modified Remedial Design contained in the Final Remedial Design Report, the SOW, the CD and the ROD, including but not limited to the following:

   1. A description of the project contracts that have been or will be awarded, including agreements with off-Site treatment and/or disposal facilities.

   2. A description of the contractor mobilization and Site preparation that is expected to occur, including construction of necessary utility hookups.

b. A Contingency Plan which shall specify the measures to be taken in the event of an accident or emergency to protect on-Site construction workers and the local community.

c. A Revised POP which shall be prepared in support of all fieldwork to be conducted according to the approved or modified Remedial Action Work Plans. The Revised POP shall be consistent with Attachment B of this Statement of Work.

d. A revised Construction Quality Assurance Plan (CQAP), if

necessary.

e. An Implementation Schedule which shall identify major milestones for completion of the Remedial Action including the commencement and completion of construction related to the soil and groundwater oxidation treatments, and which shall include a schedule for demonstrating compliance consistent with the draft Demonstration of Compliance Work Plan. The Implementation Schedule shall provide for treatment of source area soils to be followed by treatment of source area groundwater (with source area soil treatment to be completed prior to the Pre-Final Site Inspection for the groundwater treatment system described below). It shall identify the key construction dates including the initiation and (to the extent possible) completion date of each phase of active treatment. The Implementation Schedule shall also identify the projected dates of the Progress Meetings conducted during the implementation, including those required pursuant to Section VI.B of this SOW.

If, during the construction of the Remedial Action for the Site, conditions warrant modifications of the design, construction, and/or schedules, the Settling Defendants may propose such design or construction or schedule modifications to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM. In accordance with the CD and after EPA approval or modification, the Settling Defendants shall implement the design or construction modifications required.

f. An Institutional Control Report which shall describe how the elements of the Institutional Control Plan prepared as part of the Remedial Design (Section V.A.3) were met or are being met. The Institutional Control Report shall include a plan and schedule for enforcement and long-term monitoring of the deed restrictions and any other institutional controls (including institutional controls implemented as part of the State-administered program to cap the landfills). The schedule shall require the Settling Defendants to submit annual reports to EPA and RIDEM on the status of all institutional controls.

g. A schedule for conducting Five-Year Reviews and for submission

of Five-Year Review Reports.

3. Pre-Construction Conference

Within 10 days of receiving EPA's approval or modification of the Remedial Action Work Plan, the Settling Defendants shall hold a pre-construction conference. The participants shall include all Settling Defendants and/or their representatives, EPA, and RIDEM.

4. Initiation of Construction and Implementation of Remedial Action

Within 15 days of receiving EPA's approval or modification of the Remedial Action Work Plan, the Settling Defendants shall initiate construction activities to implement the Remedial Action. Settling Defendants shall perform all the activities required in the approved or modified Remedial Action Work Plan (including activities required in the Implementation Schedule), by the deadlines imposed in the Plan.

5. Demonstration of Compliance Work Plan

Within 30 days of receiving EPA's approval or modification of the Remedial Action Work Plan, the Settling Defendants shall submit a final Demonstration of Compliance Work Plan to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. The Demonstration of Compliance Work Plan shall describe all activities necessary to implement the environmental monitoring part of the remedy, to obtain the data necessary for EPA to determine that the Performance Standards have been attained, and to show how these Performance Standards will be maintained. The Demonstration of Compliance Work Plan shall be a continuation and expansion of the draft Demonstration of Compliance Work Plan submitted as part of the Pre-Final Remedial Design and described in Section V.A. of this SOW, and shall include updated versions of all the provisions required of the draft Demonstration of Compliance Work Plan.

Upon approval or modification by EPA, Settling Defendants shall perform all activities required by the Demonstration of Compliance Work Plan, as per the schedule contained therein.

6. **Demonstration of Compliance Report for Source Area Soil Treatment**

Within 60 days after the treatment of source area soils with chemical oxidation has been completed (including backfilling and re-vegetation and receipt and validation, if required, of any associated analytical data), the Settling Defendants shall submit a Demonstration of Compliance Report to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to section XI of the Consent Decree. This report shall be submitted prior to the Pre-Final Site Inspection (described below).

The Demonstration of Compliance Report for source area soil treatment shall document that the Performance Standards for soil have been met and will be maintained, and that this part of the remedy has been performed consistent with the Remedial Design approved or modified in the Final Remedial Design Report (including a showing that ARARs have been complied with and that monitoring revealed no adverse impacts on URI Pond and wetlands from mixing of oxidants into the soil).

7. **Operations and Maintenance Plan**

The Settling Defendants shall perform the activities necessary to maintain and evaluate performance of the groundwater oxidation and groundwater monitoring systems. These activities shall begin during the later stages of construction and end with the submission of the Final Remedial Action Report.

The Settling Defendants shall review and update the draft O&M Plan prepared as part of the Remedial Design and described in Section V.A. of this SOW, as necessary, to include as-built drawings. Pursuant to Section XI of the Consent Decree, the Settling Defendants shall submit to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, the final O&M Plan no less than 30 days prior to the start of operation of the groundwater chemical oxidation treatment system. The O&M Plan shall contain updated versions of the provisions required of the draft O&M Plan.

Sampling and analysis activities described in the O&M Plan shall be performed for the purpose of evaluating general system operation and not

for the purpose of demonstrating compliance. Sampling and analysis conducted for the purpose of demonstrating compliance is described in the Demonstration of Compliance Work Plan.

A Revised POP shall be prepared in support of all fieldwork to be conducted according to the O&M Plan and the Demonstration of Compliance Work Plan for the remedy.

8. Pre-Final Site Inspection and Report

A pre-final site inspection and report shall be completed at the conclusion of the construction of the groundwater chemical oxidation treatment system.

a. Pre-Final Site Inspection

Within 5 days after the Settling Defendants conclude that the construction of the groundwater chemical oxidation treatment system has been fully (100%) completed, the Settling Defendants shall schedule and conduct an on-Site Pre-Final Inspection for the remedy.

The Pre-Final Site Inspection shall include participants from all parties involved in the Remedial Action, including but not limited to the Settling Defendants and their Supervising Contractor, EPA, and RIDEM. The meeting shall include an on-Site inspection of the completed source area soil remedy and the completed construction of the groundwater oxidation system with emphasis on any deficient construction items and a proposed resolution and time frame for correction and a review of as-built plans, drawings, and specifications.

b. Pre-Final Site Inspection Reports

Within 5 days after the Settling Defendants conclude that the construction of the groundwater chemical oxidation treatment system has been fully (100%) completed, the Settling Defendants shall submit a Pre-Final Site Inspection Report to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent

Decree. The Pre-Final Inspection Report shall outline the outstanding or deficient construction items (punch list), the actions required to resolve the items, completion dates for the items, and the date of the final site inspection.

9. Final Site Inspection and Report

a. Final Site Inspection

Within 60 days after EPA approval or modification of the Pre-Final Site Inspection Report, the Settling Defendants shall resolve the deficient items identified in the Pre-Final Site Inspection Report and demonstrate that the groundwater chemical oxidation treatment system conforms to the Final Remedial Design Report. Within this time, the Settling Defendants shall schedule and conduct a Final Site Inspection. The Final Site Inspections shall include participants from all parties involved in the Remedial Action, including but not limited to the Settling Defendants and their Supervising Contractor, EPA, and RIDEM. The Final Site Inspection shall include a discussion of system components and operations, an on-site inspection and operational demonstration of the groundwater chemical oxidation treatment system, and an on-site inspection of the completed soil remedy. The purpose of the Final Inspection is to certify that the groundwater oxidation system has been installed consistent with the approved or modified Remedial Design and that the soil remedy is complete.

b. Final Site Inspection Report

Within 5 days after the Final Site Inspection, the Settling Defendants shall submit a Final Site Inspection Report to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. Settling Defendants shall take any action required by EPA to rectify any deficiencies identified during the Final Site Inspection.

10. O&M Plan Implementation

Within 30 days of receiving EPA's approval or modification of the

Settling Defendants' O&M Plan, the Settling Defendants shall implement all operating activities in accordance with the terms and schedules set forth in the O&M Plan approved or modified by EPA.

11. Interim Remedial Action Report

Within 12 months after EPA approval or modification of the Final Site Inspection Report, the Settling Defendants shall submit an Interim Remedial Action Report, prepared in accordance with Close Out Procedures for National Priorities List Sites (EPA/540/R-98/016) (particularly Exhibit 2-3 of that guidance, which lists requirements of the Final Remedial Action Report), to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. The Interim Remedial Action Report shall include the Settling Defendants' Certification and shall also certify that all construction activities are complete, Performance Standards have been attained (except for the groundwater cleanup levels), Final Site Inspection has been conducted, and the groundwater chemical oxidation treatment remedy is operational and functional. The Interim Remedial Action Report shall include at a minimum the following documentation:

a. chronology of events and procedures used;

b. tabulation of analytical data and field notes prepared during the course of the Remedial Design and Remedial Action activities including but not limited to: data monitoring the remedy's conformity with ARARs and environmental monitoring data collected pursuant to the Demonstration of Compliance Plans specified in Section VI.A of this SOW, including QA/QC documentation;

c. documentation that the applicable Performance Standards have been met (or in the case of groundwater, are being met) including, but not limited to: the sampling/testing locations; frequency of sampling/testing and comparison of test results with the applicable Performance Standards in a tabular form; and QA/QC documentation of these results;

d. as-built drawings signed and stamped by a professional engineer;

e. summary of the implementation of the construction quality control plan;

f. description of the construction activities undertaken;

g. description and final volumes for all wastes treated;

h. documentation of the Pre-Final and Final Site Inspections, including description of the deficient construction items identified during these inspections and documentation of the final resolution of all deficient items;

i. certification that the work was performed consistent with the ROD, CD, Remedial Design plans and specifications, the Remedial Action Work Plan and POP, and that the groundwater restoration remedy component is operational and functional; and

j. schedule for remaining operating activities, and compliance monitoring including summary of the O&M Plan and the Demonstration of Compliance Work Plan, and discussion of any problems/concerns.

12. Petition for Discontinuation of the Source Area Groundwater Treatment

The Settling Defendants shall not discontinue the operation of the groundwater chemical oxidation treatment system until Settling Defendants have submitted, and EPA has approved (after reasonable opportunity for review and comment by RIDEM) a Petition for Discontinuation of the Source Area Groundwater Treatment. This petition shall show that 90 percent of the mass of VOCs in the source area groundwater has been destroyed, as determined by a groundwater monitoring program, except that EPA may in its sole discretion (after reasonable opportunity for review and comment by RIDEM) accept and approve a petition to discontinue treatment at an earlier time.

In this petition, the Settling Defendants shall summarize the data collection and analysis performed in support of the petition to discontinue the Source Area Groundwater Treatment. The petition shall include a

program for the continued Monitored Natural Attenuation for the groundwater in the Source Area and the downgradient plume to achieve the Performance Standards.

13. Demonstration of Compliance Report for Groundwater

Once Provisional Groundwater Cleanup Levels have been attained throughout the groundwater plume, the Settling Defendants shall submit a Demonstration of Compliance Report for Groundwater to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree. The Demonstration of Compliance Report for Groundwater shall include:

a. Documentation that the Provisional Groundwater Cleanup Levels have been attained and will be maintained throughout the plume, that the ARARs listed in the ROD have been complied with, that the exceedance of ambient water quality standards in URI Pond has been eliminated, and that the oxidation treatments have not otherwise negatively affected surface waters or wetlands at the Site. The report shall summarize the data collection and analysis performed to demonstrate compliance

b. A risk assessment consistent with EPA and EPA Region I guidance (including *Guidelines for Carcinogen Risk Assessment* and *Supplemental Guidance for Assessing Early-Life Exposure to Carcinogens*, and/or any updates or revisions to these guidance documents identified by EPA) demonstrating that the Provisional Groundwater Cleanup Levels remain protective of human health and the environment. In the event that this risk assessment does not show continued protectiveness, the Demonstration of Compliance Report for Groundwater shall propose Modified Groundwater Cleanup Levels, and a plan to continue MNA until such levels have been attained. In the event Modified Groundwater Cleanup Levels are approved or modified by EPA, Settling Defendants shall submit an updated Demonstration of Compliance Report for Groundwater when these modified levels have been attained throughout the plume.

c. A plan to continue monitoring to demonstrate that Provisional Groundwater Cleanup Levels (or Modified Groundwater Cleanup

Levels approved or modified by EPA, in the event such levels are necessary to protect human health and the environment) have been attained at all compliance points for three years after such compliance is first achieved.

If, at any time during the three-year period described above, the Provisional Groundwater Cleanup Levels (or any Modified Groundwater Cleanup Levels) are no longer being met, the Settling Defendants shall recommence the Monitored Natural Attenuation of the groundwater. The Settling Defendants may then again submit the Demonstration of Compliance Report in accordance with requirements set forth in this section.

14. Final Remedial Action Report

Once the Demonstration of Compliance Report for Groundwater has been approved or modified and Provisional Groundwater Cleanup Levels (or any Modified Groundwater Cleanup Levels approved by EPA) have been attained for three consecutive years, the Settling Defendants, EPA and the State shall conduct the pre-certification inspection described in section XIV of the CD, and afterward the Settling Defendants shall submit a Final Remedial Action Report to EPA for review and approval, after a reasonable opportunity for review and comment by RIDEM, pursuant to Section XI of the Consent Decree.

The Final Remedial Action Report shall include assurances by the Settling Defendants (accompanied by adequate documentation) that all Performance Standards have been met for three consecutive years and will be maintained, and that the ARARs listed in the ROD have been complied with. In addition, the Final Remedial Action report shall demonstrate that institutional controls necessary to protect the integrity of the landfill caps, any other institutional controls necessary to maintain protectiveness, are still recorded and enforced. The Final Report shall also contain a request that EPA issue a Certification of Completion of Remedial Action and (to the extent phases of the Work other than Remedial Action are also complete) a Certification of Completion of Work under section XIV of the CD.

The Final Remedial Action Report shall update all the information submitted in the Interim Remedial Action Report, to present the activities

and events that have occurred and the data that has been collected since the Interim Remedial Action Report, in accordance with Close Out Procedures for National Priorities List Sites (EPA/540/R-98/016) (particularly Exhibit 2-3 of that guidance, which lists requirements of the Final Remedial Action Report). In addition, the Settling Defendants shall submit a summary report on the cost and performance of the Remedial Action. This report shall be prepared in accordance with EPA's Guide to Documenting Cost and Performance for Remediation Reports (EPA 542-B-095-002), dated March 1995, as amended or superseded.

If EPA disapproves of the Final Remedial Action Report, the Settling Defendants shall perform those activities necessary to correct deficiencies and resubmit the Final Remedial Action Report to EPA for approval, according to a schedule approved by EPA, pursuant to Section XI of the Consent Decree.

15. Five-Year Review Reports

EPA will review the Site at least once every five years to demonstrate that the Remedial Action continues to protect human health and the environment. Every five years, on a schedule set out in the Remedial Action Work Plan (but beginning within five years of the date on which the remedial action associated with the State-administered landfill closure was initiated), Defendants shall provide to EPA and the State a Five-Year Review Report, to be submitted EPA for approval by EPA after a reasonable opportunity for review and comment by the State, pursuant to Section XI of the Consent Decree. This report shall contain data and supporting documentation sufficient to demonstrate that human health and the environment are being protected by the Remedial Action. The report shall be prepared in accordance with EPA's Comprehensive Five-Year Review Guidance (OSWER 9355.7-03B-P), dated June 2001, as amended or superseded.

B. Meetings During Construction

The Settling Defendants and their Supervising Contractor shall confer (by telephone or in person, as EPA chooses) weekly with EPA and RIDEM regarding the progress and details of construction. These conferences shall start 15 days after EPA approval or modification of the Remedial Action Work Plan and the Revised POP, and continue until EPA, after reasonable opportunity for review and

comment by the State, determines that the conferences are no longer required or not required for a specified period of time to be determined by EPA.

VII. SUBMISSIONS REQUIRING AGENCY APPROVAL

A. All plans, deliverables, and reports identified in the SOW for submission to EPA and RIDEM shall be delivered to EPA and the RIDEM in accordance with the CD and this SOW.

B. Any plan, deliverable, or report submitted to EPA and RIDEM shall be printed using two-sided printing when possible and marked "Draft" on each page and shall include, in a prominent location in the document, the following disclaimer: "Disclaimer: This document is a DRAFT document prepared under a government CD. This document has not undergone formal review by EPA and RIDEM. The opinions, findings, and conclusions expressed are those of the author and not those of the U.S. Environmental Protection Agency and the Rhode Island Department of Environmental Management."

C. Approval of a plan, deliverable, or report does not constitute approval of any model or assumption used by the Settling Defendants in such plan, deliverable, or report.

VIII. COMMUNITY RELATIONS SUPPORT

The Settling Defendants shall develop a Community Relations Plan (CRP) to describe public information and public involvement activities anticipated during the RD/RA. The Community Relations Plan shall be submitted to EPA and RIDEM for review concurrently with the Remedial Design and Pilot Studies Work Plan, pursuant to Section XI of the Consent Decree.

The Settling Defendants shall support the community relations efforts of EPA and RIDEM. This support shall be at the request of EPA or RIDEM and may include:

A. participation in public informational or technical meetings, including the provision of presentations, logistical support, visual aids, and equipment;

B. publication and copying of fact sheets or updates;

C. assistance in placing EPA/RIDEM public notices in print.

ATTACHMENT A
SCHEDULE OF REMEDIAL DESIGN/REMEDIAL ACTION DELIVERABLES/MILESTONES

Deliverable/Milestone	Due date
REMEDIAL DESIGN	
Design Progress Reports	On the 10th day of every month (or on the first workday following the 10th if the 10th is a holiday or weekend) beginning in the month Settling Defendants submit the Remedial Design and Pilot Studies Work Plan and until EPA approval of the 100% Design.
Remedial Design and Pilot Studies Work Plan	Within 30 days after EPA issues its authorization to proceed, or by any earlier deadline agreed to by Settling Defendants and EPA. The Work Plan shall included a Project Operations Plan (POP) which consists of a Site Management Plan, Sampling and Analysis Plan, and a Site-specific Health and Safety Plan.
Community Relations Plan	The same day as the Remedial Design and Pilot Studies Work Plan.
Institutional Control Plan	Within 45 days after the Effective Date of the Consent Decree.
Preliminary Remedial Design (30% Design Report)	No more than 180 days after EPA approval of the Remedial Design and Pilot Studies Work Plan. Report shall include a Pilot Studies Evaluation Report, a Design Criteria Report and a Basis of Design Report.
Preliminary Remedial Design Meeting	Within 5 days after submission of the Preliminary Remedial Design Report.

Pre-Final Remedial Design Report (90% Design Report)	Within 90 days after EPA approval of the Preliminary Remedial Design Report. Report shall function as a draft version of the Final Remedial Design Report. Report shall include a final Basis of Design Report, a draft O&M Plan, a Construction Quality Assurance Plan, the written responses to EPA and the State comments generated on the 30% Remedial Design Report, and a draft Demonstration of Compliance Work Plan.
Pre-Final Remedial Design Meeting	Within 5 days after submission of the Pre-Final Remedial Design Report.
Final Remedial Design Report (100% Design Report)	Within 60 days after EPA approval of the Pre-Final Remedial Design Report. The Report shall include the written responses to EPA and the State comments generated on the 90% Remedial Design Report.

REMEDIAL ACTION

Remedial Action Progress Reports	On the 10th day of every month (or on the first workday following the 10th if the 10th is a holiday or weekend) , for the period beginning with the submission of the Remedial Action Work Plan and until EPA approval of the Remedial Action Report.
Remedial Action Work Plan	Within 30 days after EPA approval of the Final Remedial Design Report. The Work Plan shall include a revised Project Operations Plan, a revised Construction Quality Assurance Plan, and an Institutional Control Report.
Pre-Construction Conference	Within 10 days of EPA approval of the Remedial Action Work Plan.
Initiation of Construction	Within 15 days of EPA approval of the Remedial Action Work Plan.
Demonstration of Compliance	Within 30 days of EPA approval of the Remedial

Work Plan	Action Work Plan.
Demonstration of Compliance Report for Source Area Soil Treatment	Within 60 days after completion of source area soil chemical oxidation treatment.
O&M Plan	No less than 30 days prior to the start of operation of the groundwater chemical oxidation treatment system.
Pre-Final Site Inspection	Within 5 days after construction of groundwater chemical oxidation treatment system is complete.
Pre-Final Site Inspection Report	Within 5 days after construction of groundwater chemical oxidation treatment system is complete.
Final Site Inspection	Within 60 days after the approval of Pre-Final Inspection Report.
Final Site Inspection Report	Within 5 days after Final Inspection.
Operating activities	Within 30 days of receiving EPA's approval of modification of the O&M Plan.
Interim Remedial Action Report	Within 12 months after EPA approval of the Final Site Inspection Report.
Petition for Discontinuation of Source Area Groundwater Chemical Oxidation Treatment	Prior to discontinuation of operation of the groundwater chemical oxidation treatment.
Demonstration of Compliance Report for Groundwater	Once Provisional Groundwater Cleanup Levels (or Modified Groundwater Cleanup Levels approved by EPA) have been attained throughout the plume.
Final Remedial Action Report	Once the Demonstration of Compliance Report for Groundwater has been approved and Groundwater Cleanup Levels have been attained for three consecutive years.

Five Year Review Reports	At least once every five years, beginning within five years of the date on which the remedial action associated with the State-administered landfill closure was initiated.
Meetings During Construction	Weekly meetings starting 15 days after EPA approval of the Remedial Action Work Plan. The meetings will continue throughout the construction period.

ATTACHMENT B
PROJECT OPERATIONS PLAN

Before any field activities commence on the Site, the Settling Defendants shall submit several site-specific plans to establish procedures to be followed by the Settling Defendants in performing field, laboratory, and analysis work. These site-specific plans include the:

A. Site Management Plan (SMP)
B. Sampling and Analysis Plan (SAP), not a separate document, but comprised of:
   B1. Quality Assurance Project Plan (QAPP)
   B2. Field Sampling Plan (FSP)
C. Health and Safety Plan (HSP)

These four volumes form the Site Project Operations Plan (POP). The four components of the POP are described in Sections A through C, herein.

The format and scope of each Plan shall be modified as needed to describe the sampling, analyses, and other activities that are clarified as the RD/RA progresses. EPA may modify the scopes of these activities at any time during the RD/RA at the discretion of EPA, after a reasonable opportunity to review and comment by the State, in response to the evaluation of RD/RA results, changes in RD/RA requirements, and other developments or circumstances.

A. Site Management Plan (SMP)

The Site Management Plan (SMP) shall describe how the Settling Defendants will manage the project to complete the Work required at the Site. The overall objective of the Site Management Plan is to provide EPA and RIDEM with a written understanding of how various project aspects such as access, security, contingency procedures, management responsibilities, waste disposal, budgeting, and data handling are being managed by the Settling Defendants. Specific objectives and provisions of the Site Management Plan shall include, but are not limited to the following:

1. Provide a map and list of properties, the property owners, and addresses of owners to whose property access may be required.

2. Clearly indicate the exclusion zone, contamination reduction zone, and clean area for on-Site activities.

3. Establish necessary procedures and provide sample letters to land owners to arrange field activities and to ensure EPA and RIDEM are notified of access-related problems and issues.

4. Provide for the security of government and private property on the Site.

5. Prevent unauthorized entry to the Site, which might result in exposure of persons to potentially hazardous conditions.

6. Establish the location of a field office for on-Site activities.

7. Provide contingency and notification plans for potentially dangerous activities associated with the RD/RA.

8. Monitor airborne contaminants released by Site activities which may affect the local populations or workers.

9. Describe how all Work areas will be maintained and restored to meet all performance standards. Restored areas shall have native vegetation established and not allow erosion.

10. Communicate to EPA, RIDEM, and the public the organization and management of the RD/RA, including key personnel and their responsibilities.

11. Provide a list of contractors and subcontractors in the RD/RA and description of their activities and roles.

12. Provide for the proper disposal of materials used and wastes generated during the RD/RA (e.g., drill cutting, protective clothing, and disposable equipment). These provisions shall be consistent with the off-Site disposal aspects of RCRA, and applicable state laws. The Settling Defendants, or their authorized representative, or another party acceptable to EPA and RIDEM, shall be identified as the generator of wastes for the purpose of regulatory or policy compliance.

13. Provide plans and procedures for organizing, manipulating, and presenting the data generated and for verifying its quality before and during the RD/RA. These plans shall include the description of the proposed computer data base management system which shall be compatible with

hardware and software available to EPA Region I and RIDEM personnel for handling media-specific sampling results obtained before and during the RD/RA.

B. Sampling and Analysis Plan (SAP)

The SAP shall be consistent with Section VIII of the CD, Quality Assurance, Sampling, and Data Analysis. The SAP consists of the following two separate volumes:

(1) a Quality Assurance Project Plan (QAPP) that describes the policy, organization, functional activities, and the quality assurance and quality control protocols necessary to achieve the data quality objectives dictated by the intended use of the data; and

(2) a Field Sampling Plan (FSP) that provides guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used on a project.

The SAP shall be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on all field work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RD/RA, the SAP shall be revised as necessary to cover each round of field or laboratory activities. The purpose of the SAP is to ensure that sampling data collection activities will be comparable to and compatible with previous data collection activities performed at the Site while providing a mechanism for planning and approving field activities. The overall objectives of the two documents comprising the SAP are as follows:

1. to document specific objectives, procedures, and rationales for fieldwork and sample analytical work;

2. to provide a mechanism for planning and approving Site and laboratory activities;

3. to ensure that sampling and analysis activities are necessary and sufficient; and

4. to ensure the comparability and compatibility of all objectives and the

sampling and analysis activities. To achieve this last objective, the SAP shall document all field and sampling and analysis objectives as noted above, as well as all data quality objectives and specific procedures/ protocols for field sampling and analysis.

The following critical elements of the SAP shall be described for each sample medium (e.g., groundwater, surface water, soil) and for each sampling event:

1. sampling objectives (e.g., engineering related, zone of influence, performance monitoring, demonstration of attainment, five year review, etc.);

2. data quality objectives, including data uses and the rationale for the selection of analytical levels and detection limits (see Guidance for the Data Quality Objectives Process, EPA QA/G-4 (EPA/600/r-96/055, September 1994); Draft Data Quality Objectives Decision Errors Feasibility Trials (DEFT) Software EPA/600/R-96/056, September 1994); and Final Guidance Data Usability in Risk Assessment (Part A) (publication 9285.7-09A, April 1992, PB92-963356); Guidance for Data Usability in Risk Assessment (Part B). (publication 9285.7-09B, May 1992, PB92-963362);

3. site background update, including an evaluation of the validity, sufficiency, and sensitivity of existing data;

4. sampling locations and rationale;

5. sampling procedures and rationale and references;

6. numbers of samples and justification;

7. numbers of field blanks, trip blanks, and duplicates;

8. sample media (e.g., groundwater, surface water, soil);

9. sample equipment, containers, minimum sample quantities, sample preservation techniques, maximum holding times;

10. instrumentation and procedures for the calibration and use of portable air, soil-, or water-monitoring equipment to be used in the field;

11. chemical and physical parameters in the analysis of each sample;

12. chain-of-custody procedures must be clearly stated (see EPA NEIC Policies and Procedures Manual, EPA 330/9-78 001-R) May 1978, revised May 1986;

13. procedures to eliminate cross-contamination of samples (such as dedicated equipment);

14. sample types, including collection methods and if field and laboratory analyses will be conducted;

15. laboratory analytical procedures, equipment, and detection limits;

16. equipment decontamination procedures;

17. consistency with the other parts of the Work Plan(s) by having identical objectives, procedures, and justification, or by cross-reference;

18. analysis from each medium for all Hazardous Substance List (HSL) inorganic and organic analytes;

19. analysis for other potential site-specific contaminants not on the HSL in each media;

20. analysis of selected background and contaminated groundwater samples for substances listed in RCRA Appendix IX, unless the exclusion of certain substances on this list is approved by EPA; and

21. for any limited field investigation (field screening technique), provisions for the collection and laboratory analysis of parallel samples and for the quantitative correlation analysis in which screening results are compared with laboratory results.

The SAP must be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on each round of field sampling and analysis work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RD/RA, the SAP shall be revised as necessary to cover each

round of field or laboratory activities. Revisions or a statement regarding the need for revisions shall be included in each deliverable describing all new field work.

The SAP shall allow for notifying EPA, at a minimum, three weeks before field sampling or monitoring activities commence. The SAP shall also allow split, replicate, or duplicate samples to be taken by EPA (or their contractor personnel). At the request of EPA, the Settling Defendants shall provide these samples in appropriately pre-cleaned containers to the government representatives. Several references shall be used to develop the SAP, for example:

1. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, EPA/540/G-89/004, October 1988);

2. Test Methods for Evaluating Solid Waste, Physical/Chemical Method (EPA Pub. SW-846, Third Edition, most recent update);

3. EPA Requirements for Quality Assurance Plans, EPA QA/R-5 (EPA/240/B-01/003) March 2001;

4. Region I, EPA-New England Compendium of Quality Assurance Project Plan Requirements and Guidance (U.S. EPA-New England Region I Quality Assurance Unit Staff, Office of Environmental Measurement and Evaluation; October 1999 Final);

5. Guidance for the Data Quality Objectives Process, EPA QA/G-4 (, EPA/600/r-96/055, September 1994);

6. Draft Data Quality Objectives Decision Errors Feasability Trials (DEFT) Software EPA/600/R-96/056, September 1994);

7. Guidance for the Data Quality Objectives Process for Hazardous Waste, EPA QA/G-4HW Draft;

8. Guidance for Preparing Standard Operating Procedures(SOPs) EPA QA/G-6 (EPA/240/B-01/004) March 2001;

9. Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996;

10. Guidance for Data Quality Assessment: Practical Methods for Data Analysis, EPA QA/G-9 (EPA/600/R-96-084, QA 97 Version, January 1998).

B1. Quality Assurance Project Plan (QAPP)

The Quality Assurance Project Plan (QAPP) shall document in writing the site-specific objectives, policies, organizations, functional activities, sampling and analysis activities and specific quality assurance/quality control activities designed to achieve the data quality objectives (DQOs) of the RD/RA. The QAPP developed for this project shall document quality control and quality assurance policies, procedures, routines, and specifications.

Project activities throughout the RD/RA shall comply with the QAPP. QAPP sampling and analysis objectives and procedures shall be consistent with EPA Requirements QAPP for Environmental Data Operations (EPA QA/R-5) and appropriate EPA handbooks, manuals, and guidelines including Region I, EPA-New England Compendium of Quality Assurance Project Plan Requirements and Guidance (October 1999 Final) the "Compendium"), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition, latest update) (CLP Routine Analytical Services, RAS, latest Statement of Work should be used) and Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR, Part 136), Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, (EPA-600/4-84-041 April 1984).

All the QAPP elements identified in EPA QA/R-5 and the "Compendium" must be addressed.

As indicated in EPA QA/R-5 and the "Compendium", a list of essential elements must be considered in the QAPP for the RD/RA. If a particular element is not relevant to a project and therefore excluded from the QAPP, specific and detailed reasons for exclusion must be provided.

Information in a plan other than the QAPP may be cross-referenced clearly in the QAPP provided that all objectives, procedures, and rationales in the documents are consistent, and the reference material fulfills requirements of EPA/QA/R-5. Examples of how this cross reference might be accomplished can be found in the Guidance for the Data Quality Objectives Process (EPA/600/R-96/055) and the Data Quality Objectives decision Errors Feasability Trials (DEFT) Software

(EPA/600/R-96/056). EPA-approved references, or equivalent, or alternative methods approved by EPA shall be used, and their corresponding EPA-approved guidelines should be applied when they are available and applicable.

Laboratory QA/AC Procedures

The QA/QC procedures and SOPs for any laboratory (both fixed and mobile) used during the RD/RA shall be included in the Settling Defendants' QAPP. When this work is performed by a contractor to a private party, each laboratory performing chemical analyses shall meet the following requirements:

1. be approved by the State Laboratory Evaluation Program, if available;

2. have successful performance in one of EPA's National Proficiency Sample Programs (i.e., Water Supply or Water Pollution Studies or the State's proficiency sampling program);

3. be familiar with the requirements of 48 CFR Part 1546 contract requirements for quality assurance; and

4. have a QAPP for the laboratory including all relevant analysis. This plan shall be referenced as part of the contractor's QAPP.

Data Validation Procedures

The Settling Defendants are required to certify that a representative portion of the data has been validated by a person independent of the laboratory according to the Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses Revised December 1996 (amended as necessary to account for the differences between the approved analytical methods for the project and the current Contract Laboratory Program Statements of Work (CLP SOW). A data validation reporting package as described in the guidelines cited above must be delivered at the request of the EPA project manager. Approved validation methods shall be contained in the QAPP.

The independent validator shall not be the laboratory conducting the analysis and should be a person with a working knowledge of or prior experience with EPA data validation procedures. The independent validator shall certify that the data has been validated, discrepancies have been resolved if possible, and the

appropriate qualifiers have been provided.

Data Package requirements:

The Settling Defendants must require and keep the complete data package and make it available to EPA and the State on request in order for EPA and the State to conduct an independent validation of the data. The complete data package shall consist of all results, the raw data, and all relevant QA/QC information. The forms contained in the data validation functional guidelines must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. All laboratory tracking information must also be included in the data package. An example data package deliverable is listed below:

1. a summary of positive results and detection limits of non-detects with all raw data;

2. tabulate surrogate recoveries and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;

3. tabulated matrix spike/matrix spike duplicate recoveries, relative percent differences, spike concentrations, and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;

4. associated blanks (trip, equipment, and method with accompanying raw data for tests);

5. tabulated initial and continuing calibration results (concentrations, calibration factors or relative response factors and mean relative response factors, % differences and % relative standard deviations) with accompanying raw data;

6. tabulated retention time windows for each column;

7. a record of the daily analytical scheme (run logbook, instrument logbook) which includes samples and standards order of analysis;

8. the chain of custody for the sample shipment groups, DAS packing slip,

DAS analytical specifications;

9. a narrative summary of method and any problems encounter during extraction or analysis;

10. tabulated sample weights, volumes, and % solids used in each sample calculation;

11. example calculation for positive values and detection limits; and

12. SW-846 method 3500 and 8000 validation data for all tests.

The forms contained in Chapter 1 of SW-846 (Second Edition 1982 as amended by Update I, April 1984, and Update II, April 1985) or the current CLP SOW forms must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. All internal and external laboratory sample tracking information must be included in the data package.

B2. Field Sampling Plan (FSP)

The objective of the Field Sampling Plan is to provide EPA and all Settling Defendants involved with the collection and use of field data with a common written understanding of all field work. The FSP should be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. Guidance for the selection of field methods, sampling procedures, and custody can be acquired from the Compendium of Superfund Field Operations Methods (OSWER Directive 9355.0-14, EPA/540/P-87/001), December 1987, which is a compilation of demonstrated field techniques that have been used during remedial response activities at hazardous waste sites. The FSP shall be site-specific and shall include the following elements:

1. Site Background. If the analysis of the existing Site details is not included in the Work Plan or in the QAPP, it must be included in the FSP. This analysis shall include a description of the Site and surrounding areas and a discussion of known and suspected contaminant sources, probable transport pathways, and other information about the

Site. The analysis shall also include descriptions of specific data gaps and ways in which sampling is designed to fill those gaps. Including this discussion in the FSP will help orient the sampling team in the field.

2. Sampling Objectives. Specific objectives of sampling effort that describe the intended uses of data must be clearly and succinctly stated.

3. Sampling Location and Frequency. This section of the FSP identifies each matrix to be collected and the constituents to be analyzed. Tables shall be used to clearly identify the number of samples, the type of sample (water, soil, etc.), and the number of quality control samples (duplicates, trip blanks, equipment blanks, etc.). Figures shall be included to show the locations of existing or proposed sample points.

4. Sample Designation. A sample numbering system shall be established for the project. The sample designation should include the sample or well number, the sample round, the sample matrix (e.g., surface soil, groundwater, soil boring), and the name of the Site.

5. Sampling Equipment and Procedures. Sampling procedures must be clearly written. Step-by-step instructions for each type of sampling that are necessary to enable the field team to gather data that will meet the Data Quality Objectives (DQOs). A list should include the equipment to be used and the material composition (e.g., Teflon, stainless steel) of equipment along with decontamination procedures.

6. Sampling Handling and Analysis. A table shall be included that identifies sample preservation methods, types of sampling jars, shipping requirements, and holding times. Examples of paperwork such as traffic reports, chain-of-custody forms, packing slips, and sample tags filled out for each sample as well as instructions for filling out the paperwork must be included. Field documentation methods including field notebooks and photographs shall be described.

Each Field Sampling Plan submitted as a part of the Project Operations Plan for the RD/RA shall be sufficiently detailed to carry out the study, and shall provide data needed to address the objective of the study and to complete the study. Each study shall be designed to achieve a high performance on the first attempt. Each work plan shall be related (by cross-references) to the other requirements in the Project Operations Plan.

In the Field Sampling Plan for the RD/RA, the Settling Defendants shall include plans that describe how each of the following and other necessary studies shall be addressed:

1. site survey;
2. soils and sources of contaminants;
3. subsurface and hydrogeological factors for overburden and bedrock;
4. air quality; and
5. surface water sampling.

C. Health and Safety Plan (HSP)

The objective of the Site-specific Health and Safety Plan is to establish the procedures, personnel responsibilities and training necessary to protect the health and safety of all on-site personnel during RD/RA. The plan shall provide for routine but hazardous field activities and for unexpected Site emergencies.

The Site-specific health and safety requirements and procedures in the HSP shall be updated based on an ongoing assessment of Site conditions, including the most current information on each medium. For each field task during the RD/RA, the HSP shall identify:

1. possible problems and hazards and their solutions;
2. environmental surveillance measures;
3. specifications for protective clothing;
4. the appropriate level of respiratory protection;
5. the rationale for selecting that level; and
6. criteria, procedures, and mechanisms for upgrading the level of protection and for suspending activity, if necessary.

The HSP shall also include the delineation of exclusion areas on a map and in the field. The HSP shall describe the on-site person responsible for implementing the HSP for the Settling Defendants' representatives at the Site, personal protective equipment, decontamination procedures, and medical surveillance. The following documents shall be consulted:

1. Interim Standard Operations Safety Guides (Hazardous Response Support Division, Office of Emergency and Remedial Response EPA, Wash. D.C. 1982);

2. Superfund Public Health Evaluation Manual (OSWER Directive 9285.41, EPA/540/1-861060, EPA 1986);

3. Hazardous Waste Operations and Emergency Response Standard (Department of Labor, Occupational Safety and Health Administration, (OSHA) 29 CFR Part 1910.120); and

4. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: Appendix B (NIOSH/OSHA/EPA 1986).

OSHA regulations at 40 CFR 1910 and Chapter 9 of the Interim Standard Operating Safety Guide, which describes the routine emergency provisions of a site-specific health and safety plan, shall be the primary reference used by the Settling Defendants in developing and implementing the Health and Safety Plan.

The measures in the HSP shall be developed and implemented to ensure compliance with all applicable state and Federal occupational health and safety regulations. The HSP shall be updated at the request of EPA (after reasonable opportunity for review and comment by the State) during the course of the RD/RA and as necessary.